

THE SHELL HEAPS OF THE EAST COAST OF FLORIDA.

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(With Plates LXXVIII-LXXXIV.)

There are many evidences that a portion of the east coast of Florida was quite thickly settled in prehistoric times, and remains of this settlement are found in refuse heaps of villages and single habitations. These heaps are from a few square yards to many acres in extent, and from 1 to 15 feet in depth. They must have been the abode of a race for many generations. The remains indicate that the variety of food obtained was great, and included all kinds of shellfish, from the large *Busycon percersum* to the tiny *Donax*, numerous kinds of fish and a species of turtle, together with various birds and mammals which now inhabit the peninsula. The skull of a whale has also been found. In connection with these remains are found the various members of the human skeleton in positions which would at least suggest cannibalism. There are hearths with accumulations of ashes and shells mingled with pottery (mostly in fragments) and implements and weapons of shell. These implements and weapons tell us all we know of the mode of life of the race which inhabited the region, and enable us more or less correctly to reconstruct this early society. That the people were hunters and fishers, the variety of animals, birds, and fish which went to supply their larders abundantly testifies. The porpoise seems to have been a favorite article of food, while the remains of the manatee are found in the shell heaps farther north than the present habitat of the animal. The whale, whose remains were found beneath one of the large heaps, at least a quarter of a mile from the ocean, may have been stranded on the beach; but all the other fish, birds, and animals were doubtless captured by the wary and active savage. It would seem as if many of the fish might have been taken with some sort of a net, as they must have employed a twisted cord for many purposes. There are marks on much of the pottery showing it to have been molded in baskets made of cord. Sinkers of various shapes were used.

The implements of shell were, for the most part, constructed from the *Busycon carica*, and the St. Augustine collection shows all forms and

stages of this construction. While the use to which the greater number of the implements of shell must have been put is obvious, there is much uncertainty regarding others which are found in abundance. One of these, known as the perforated shell, may have been used for the dressing of skins, and the perforation which has provoked so much speculation, made for the insertion of the finger to give more firmness to the grasp.* (Pl. LXXVIII.)

Another, found in abundance, is made usually from the smaller shells of the *Strombus*, and is worked as near as possible to the form of a ball. They may have been playthings of the children. The drinking shells were prepared with great care, and seem also to have been used as cooking utensils, some of them showing marks of exposure to fire. (Pl. LXXIX.) From the great number of perforated shells found on one small heap I was led to conclude that it was in some sense a manufactory of these articles. Some of these scrapers or gouges show as sharp an edge as it is possible for a shell to receive, while others are dull. Other utensils take the form of spoons. A granite or other pebble with an end flattened and polished was probably used to put an edge on such implements as required to be sharpened.

The pottery, though mostly in fragments, affords an interesting study and shows great variety of design in its ornamentation. Some of the vessels were made in baskets woven from cord, while others, from the peculiar marking on their external surface, must have been made in another way. The great smoothness and perfect regularity of the internal surface of these vessels is remarkable. They vary much as to the character of the material of which they are made. Some are of pure clay; and of these, some are thoroughly baked and hardened, while others are slightly baked and therefore brittle. Others have an admixture, to a greater or less degree, of sand, and are harder. In size they vary from a bowl holding 1 or 2 quarts to vessels holding 5 gallons, and in shape from a shallow pan-like dish to a pot or vessel resembling a jug. (Pls. LXXX, LXXXI.) The ornamentation includes about one hundred different designs, the principal of which are shown in Pl. LXXXII. It is easy to understand the origin of the fine cord-like markings which appear on the surface of those vessels which were molded in baskets. Other vessels were apparently ornamented by using a pen-like instrument made from a reed, while the clay was soft, and still others by rolling portions of the soft clay and then putting them on as a housewife sometimes ornaments her pie crusts. In one specimen, the impress of the fingers is plainly visible, showing even the texture of the skin. By far the larger portion, however, appear to have been ornamented by the use of a stamp, which left the surface arranged in squares, as shown in the plate. Fully three-fourths of the pottery found is ornamented in this

* These shells have been found with wooden handles inserted in the perforation for use as hatchets or picks, and the U. S. National Museum possesses several specimens.—T. W.

way. These vessels must have served for cooking, as well as for holding water, as many are blackened from exposure to the fire. While it is probable that these people cooked the greater part of their food by roasting over the fire, yet the tiny *Donax* shells at least, which are present in immense numbers, must have been boiled in water to obtain a broth. They are too small to have been cooked in any other way. The number and extent of the hearths and the amount of ashes proves that the *Indigenes* usually cooked their food.

The form of the mounds and collections of shells is of interest, and some of the larger ones may enable us to determine the form of the prehistoric habitation. When individual families dwelt by themselves there would be one slowly growing heap for each, which after a time might be abandoned. When a comparatively wide extent was occupied the remains would take the form of what we now call Shell Fields—places where the ground for many acres appears to be full of shells, but without elevations rising above the general level. A form common among the heaps is that of a long bank or mound, from 2 to 10 or more feet in thickness, and covering from one to several acres, always near the water and usually in proximity to an inlet of the sea. Scattered through these heaps, from the surface of the soil beneath to their summits, are found implements, utensils, and fragments, of pottery. A hearth, with a foot or more of ashes and 6 feet or even more across, may be found, with 5 or 6 feet of shells above it. This disposition of remains gives a clew to the manner of formation of the mounds and is well shown in the large mound below Matanzas Inlet, which covers more than 30 acres (Pl. LXXXIV). The side facing the ocean is from 10 to 12 feet in depth, but has suffered from the encroachment of the sea to an extent which can not be determined (Pl. LXXXIII). The highest part of the mound covers about 2 acres, and back of this, extending to the Matanzas River, lies the remainder, disposed in circles of greater or less extent and covered with forest. These circles adjoin each other over a large part of the territory. They are from 4 to 8 feet in depth and from 12 to 15 feet across at the bottom. This was a dwelling place, and the daily refuse was thrown out on all sides, and so the circles of shells, bones, etc., gradually grew higher and higher, surrounding the rude dwelling like a wall. This wall would also serve for protection from the winds of winter and likewise as a pit for defense in case of attack. When this hollow had become too deep, or the wall about it too high, it would be abandoned, and the owner, pitching his tent on the top of surrounding ridges, would use the hollow as a pit in which to throw refuse.

The mound of which I am now speaking would appear to have been in some sort a center of population for many miles around. A spring of water lies in the midst of it, and the waterway was kept open to the river. Smaller mounds are found scattered up and down the river for several miles in the vicinity. One of these, some 2 miles north and

near the inlet at Matanza Bar, was perhaps used as a lookout and signal station. A large part of this mound (Pl. LXXXIV) was removed from the northeast part and piled up on the remainder, forming a peak about 35 feet high. From this point a good view is obtained for several miles along the level country, and an approaching enemy could be easily seen. A covered way or ditch runs from the base to the summit, thus hiding those who were passing from the sight of the enemy.

As to the age of these heaps all must be left to conjecture. Trees hundreds of years old are scattered over them. All instruments and implements of wood have long since perished, and not even a tradition of them remains. The shell heaps appear to me older than the earth mounds which some times adjoin them.